Diagonalisation of Random Real Symmetric Matrices

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Implement a function that takes a positive integer number n as the argument, generates an n*n random real symmetric matrix (with random elements uniformly distributed in [0,1]), diagonalizes it, and returns the largest eigenvalue as the result.
Make a plot of the function (e.g. for $1 \leq n \leq 50$) and a reasonable fit. You can generate (pseudo)random real numbers uniformly distributed between zero and one using the *rand* function from stdlib,
#define RND (double)rand()/RAND_MAX
You can sort eigenvalues with the gsl_sort_vector function.

Results

Here is an example of a random real symmetric matrix, made with the script:

0.016	0.243	0.137	0.804	0.157
0.243	0.401	0.130	0.109	0.999
0.137	0.130	0.218	0.513	0.839
0.804	0.109	0.513	0.613	0.296
0.157	0.999	0.839	0.296	0.638

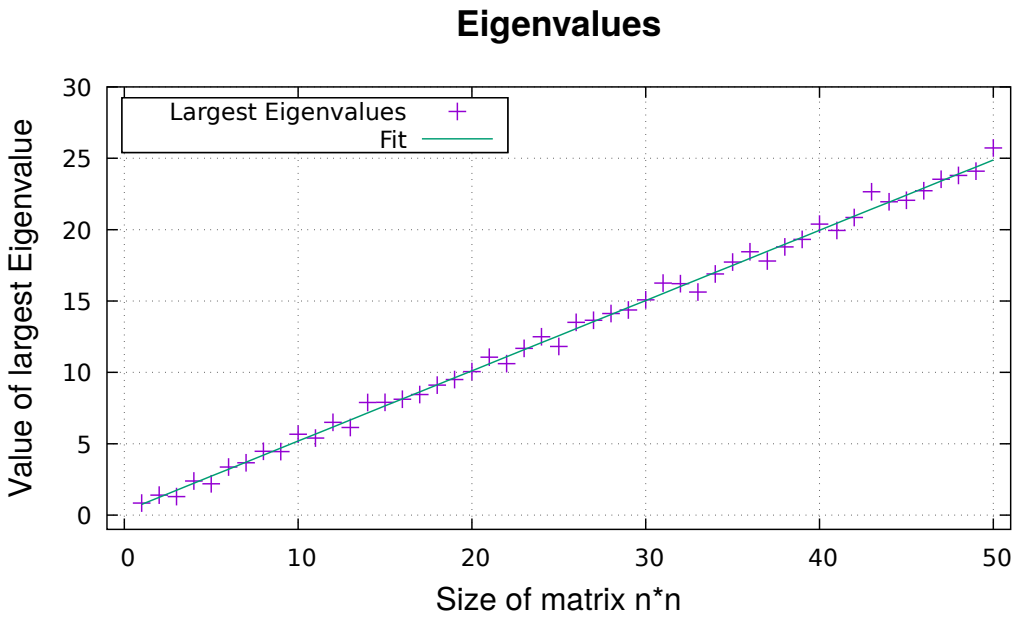

Figure 1: Homemade figure of the largest Eigenvalues